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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,730	06/29/2000	Paul C. Wilson	07072-105001	6692

45456 7590 06/20/2005

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EXAMINER	
PUENTE, EMERSON C	
ART UNIT	PAPER NUMBER
2113	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/606,730	WILSON ET AL.	
	Examiner	Art Unit	
	Emerson C. Puente	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2005* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-21,26-49 and 52-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-21, 26-39, 44-49, and 52-54* is/are allowed.

6)☒ Claim(s) *4-7 and 40-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4/19/05* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim 1-3, 22-25, and 50-51 were canceled. Claims 4-21, 26-49 and 52-54 have been examined.

This action is made **Final**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-7 and 40-43 are rejected under 35 U.S.C. § **103(a)** as being unpatentable over US Patent No. 5,214,768 of Martin in view of Ninomiya.

In regards to claims 4, Martin discloses a data storage system for transferring data between a host computer/server and a bank of disk drives through a system interface, such system interface comprising:

a plurality of first directors coupled to the host computer/server (see figure 1 items 14,16,18,19);

a plurality of second directors coupled to the bank of disk drives (see figure 1 item 48).

a message network coupled to the plurality of directors and the plurality of second directors(see figure 1 item 42), such first and second directors controlling data transfer between the host computer and the bank of disk drives in response to messages passing between the directors through the messaging network as such data passes through the memory via the data transfer section (see column 8 lines 10-20).

wherein there are separate point-to-point data paths (see figure 1).

However, Martin fails to disclose a system interface comprising:

a cache memory accessible to the plurality of first directors and second directors ;

wherein there are separate point-to-point data paths between each one of the directors and the global cache memory.

Ninomiya discloses a system interface comprising:

a cache memory accessible to the plurality of first directors and second directors (see figure 20 items 203, 207, 208 and column 1 lines 26-46).

wherein there are separate point-to-point data paths between each one of the directors and the global cache memory (see figure 20 items 207, 208 and column 1 lines 26-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Martin such that the system interface comprises of a cache memory. A person of ordinary skill in the art would have been motivated to make the modification to Martin because Martin discloses performing read operations in a data storage retrieval system (see column 8 line 10) and having a cache memory, as per teachings of Ninomiya, would reduce read access time, thus providing a faster system.

In regards to claims 5, Martin in view of Ninomiya primary teaching fails to disclose:

including a backplane and wherein the cache memory and directors are interconnected through the backplane

However, Ninomiya's secondary teaching discloses:

including a backplane and wherein the cache memory and directors are interconnected through the backplane (see figure 8 and column 8 lines 29-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a backplane and wherein the cache memory and directors are interconnected through the backplane. A person of ordinary skill in the art would have been motivated because Ninomiya first teaching discloses host adaptors, cache memory, and disk adaptors being connected (see figure 20) and a backplane, as per secondary teachings of Ninomiya, enables connection of the host adaptors, cache memory, and disk adaptors (see column 8 lines 29-41)

In regards to claim 6, Ninomiya discloses a system wherein the backplane is a printed circuit board (see figure 8 and lines 29-30).

In regards to claim 7, Martin discloses a system wherein the messaging network comprises a switch network having a plurality of ports, each one of the ports being coupled to a corresponding one of the plurality of first and second directors. Martin discloses a control

subsystem and switch subsystem (see figure 1 items 42), which constitute as the messaging network, indicating a switch network having plurality of ports, each of the ports being coupled to a corresponding one of the plurality of first and second directors.

In regards to claims 40, Martin discloses a system interface comprising:

a plurality of first directors coupled to the host computer/server (see figure 1 item 14, 16, 18, 19);

a plurality of second directors coupled to the bank of disk drives (see figure 1 item 48);

a messaging network coupled to the plurality of first directors and the second directors (see figure 1 item 42), such first and second directors control data transfer between the host computer and bank of disk drives in response to messages passing between the directors through the messaging network as such data passes through the memory via the data transfer section (see column 7 lines 63-68 and column 8 lines 1-18)

wherein the messaging network passes the messages from any of the first plurality of directors to a selected one of said second plurality of directors and from any one of the second plurality of directors to a selected one of the first plurality of directors (see column 8 lines 10-20).

wherein there are separate point-to-point data paths (see figure 1).

However Martin fails to disclose:

a cache memory accessible to the plurality of first directors and second directors

and wherein there are separate point-to-point data paths between each one of the directors and the cache memory.

Ninomiya discloses:

a cache memory accessible to the plurality of first directors and second directors (see figure 20 items 203, 207, 208 and column 1 lines 26-46).

wherein there are separate point-to-point data paths between each one of the directors and the global cache memory (see figure 20 items 207, 208 and column 1 lines 26-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Martin such that the system interface comprises of a cache memory. A person of ordinary skill in the art would have been motivated to make the

modification to Martin because Martin discloses performing read operations in a data storage retrieval system (see column 8 line 10) and having a cache memory, as per teachings of Ninomiya, would reduce read access time, thus providing a faster system.

In regards to claim 41, Martin in view of Ninomiya's first teaching fails to disclose;

including a backplane and wherein the cache memory and directors are interconnected through the backplane

However, Ninomiya's secondary teaching discloses:

including a backplane and wherein the cache memory and directors are interconnected through the backplane (see figure 8 and column 8 lines 29-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a backplane and wherein the cache memory and directors are interconnected through the backplane. A person of ordinary skill in the art would have been motivated because Ninomiya first teaching discloses host adaptors, cache memory, and disk adaptors being connected (see figure 20) and a backplane, as per secondary teachings of Ninomiya, enables connection of the host adaptors, cache memory, and disk adaptors (see column 8 lines 29-41)

In regards to claim 42, Ninomiya discloses a system wherein the backplane is a printed circuit board (see figure 8 and lines 29-30).

In regards to claim 43, Martin discloses a system wherein the messaging network comprises a switch network having a plurality of ports, each one of the ports being coupled to a corresponding one of the plurality of first and second directors. Martin discloses a control subsystem and switch subsystem (see figure 1 items 42), which constitute as the messaging network, indicating a switch network having plurality of ports, each of the ports being coupled to a corresponding one of the plurality of first and second directors.

Response to Arguments

Applicant's arguments filed April 19, 2005 have been fully considered but they are not deemed to be persuasive.

In regards to applicant's argument that "With regard to this rejection, applicant points out that it has a global cache memory for user data there is a requirement for arbitration to decide which one of multiple requesting directors has access to the global memory. This arbitration for

the global memory by the plurality of directors increases access times and reduces system bandwidth. Therefore, the examiner's position that the use of a memory accessible by a plurality of directors such as in Ninomiya (US Patent No. 5,819,054) in a system of Martin et al. reduces access time, thus providing a faster system, is not understood", examiner respectfully disagrees.

Ninomiya discloses a cache memory (see figure 20 item 203 and column 1 lines 27-30). A cache memory, by definition, stores frequently used information located in a storage system for easier access. When there is an access request of information, there would be a check in the cache to see if the cache contains the information first. If the information exists in the cache, there is no need to search the whole storage system for the information. This reduces access times for retrieving information by not having to search for every request in the storage system, thus providing a faster system. Examiner maintains rejection.

Allowable Subject Matter

The following is an Examiner's statement of reasons for the indication of allowable subject matter: Claims 8-21, 26-39, 44-49, and 52-54 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior arts.

Claims 8, 9, 11, 13, 14, 18, 26, 27, 29, 31, 32, 36, 44, 45, 47, 49, 52, and 53 are allowable as indicated in the previous office action.

The remaining claims, not specifically mentioned, are allowed because they are dependent upon one of the claim mentioned above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emerson C. Puente whose telephone number is (571) 272-3652.

The examiner will be moving in October 2004. The examiner number at the new site is (571) 272-3652. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Emerson Puente

6/14/05

ROBERT BEAUSOLIEL
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